MARSHALL STAR

Vol. 37 / Num. 33 | Marshall Space Flight Center | April 30, 1997

Full Day of Sights, Activities Awaits Open House Visitors

by Peter Cobun

The glamour of a world-premiere music video, mingling with real-life astronauts — including Huntsville's own Jan Davis — and incredible, down-to-Earth demonstrations await visitors when the Marshall Center throws open its doors to the public this Saturday.

Marshall Center's first Open House in more than 30 years — a free event — will feature the premiere of the space-themed music video, "A Time for Courage," written and performed by Marshall's own Tina Swindell (see article on page 2.

And visitors can meet U.S. astronauts Davis and Mark Lee — the first married American astronauts to fly together on a Space Shuttle mission.

Davis, who grew up in Huntsville and is the veteran of two Space Shuttle flights, is in training as the payload commander for the Shuttle mission scheduled in July. Lee has flown four Shuttle missions, most recently as payload commander of the second Hubble Space Telescope servicing mission.

Open House visitors will find Davis and Lee at Marshall's Payload Crew Training Complex, where both trained for their

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Open House Chairperson Cedreck Davis, right, and BAMSI employee Dewey Williams place an "Open House" sign on Rideout Road in preparation for Saturday.
Photo by Danny Reeves

Marshall Center Deputy Director Carolyn Griner presents a model of the Space Shuttle to Congressman Bud Cramer during his visit here last week.
Photo by Dennis Keim

Linenger's Spacewalk Marks First; Deploys Marshall Experiment

U.S. astronaut Jerry Linenger, on the Space Station Mir, conducted his first spacewalk Tuesday. In the course of the five-hour spacewalk, Linenger deployed a Marshall-managed space environment monitoring instrument to the Mir exterior and retrieved two other experiments.

Linenger was joined by Mir 23 Commander Vasily Tsibliev, marking the first joint spacewalk by a U.S. astronaut and a Russian cosmonaut. It was also the first time a U.S. astronaut conducted a spacewalk wearing a Russian spacesuit.

The experiment deployed by Linenger, known as the Optical

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Marshall-Managed MSL to Refly In July; 1997 Manifest Adjusted

Columbia's Marshall-managed Microgravity Science Laboratory (MSL) mission will fly again in early July to complete the mission cut short earlier this month because of a fuel cell problem, NASA has announced. The remaining Space Shuttle flights in 1997 have been adjusted to accommodate the mission, which will fly as STS-94. Air Force Lt. Col. Jim Halsell and the rest of the STS-83 crew will fly this mission and will conduct proficiency training until the flight.

Space Shuttle Program managers Friday formally baselined the STS-94 mission to follow Atlantis' sixth docking with the Russian

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Talents of Swindell-Solomon Duo on Display at Open House

Tina Swindell, sitting, and Debbie Solomon review the space video "A Time for Courage" in the Marshall Center Production Studio.

by Nancy Robinson

"...There's a time for courage
time to be strong
time to step out into the darkness
with only faith to lean on.... "

That is the central message in the music video, "A Time for Courage," the latest collaborative project of two talented Marshall women and one of the attractions at this Saturday's Open House.

The video, with music by Marshall employee Tina Swindell and images by INET television producer Debbie Solomon, will debut in a sneak preview setting for those attending the May 3 event. It will be shown every 10 minutes between 9 a.m. and 4 p.m. at Morris Auditorium in Building 4200.

The primary audience for the music video will be visitors to the U.S. Space and Rocket Center, where it will be a key element in the Marshall Center exhibit area of the museum. The video focuses on Huntsville and Marshall's pivotal role in the space program, conveying the great leap from cotton fields to rockets and the courage it took to make the transition from a sleepy mill town into a center of the space age.

".... all those who have dedicated time, tears, and lives believe the reward is worth the risk they take....," Swindell sings. The words and music have a "catchiness" to them, but more importantly, Swindell wanted the video to highlight the courage of the many people over the years who gave their lives so completely toward a common goal.

"The video serves as a reminder of how far we've come as a

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Acting Director of Institutional and Program Support Dan Clough, left, Marshall Center Associate Director Susan Smith, middle, and Beth Holliman-McLain of the Huntsville Land Trust plant a Honey Locust tree during Earth Day activities.
Photo by Terry Leibold

Marshall Supports X-33 With Aerospike Engine Testing

by Tony Jacobs

NASA engineers at the Marshall Center are conducting a series of tests for the linear aerospike engine, which will provide propulsion for NASA's X-33 Advanced Technology Demonstrator.

The test apparatus, located in the Marshall Propulsion Laboratory's East Test Area, consists of three hydrogen-cooled thrusters, or thrust cells, mounted side by side and attached to a 4-foot-long copper alloy nozzle, or ramp. This apparatus represents a section of the X-33 engine which will have two banks of 10 side-by-side thrusters.

A linear aerospike nozzle basically is a two-dimensional version of a conventional bell nozzle turned inside-out. The thrusters burn a combination of oxygen and hydrogen to propel super-hot exhaust gasses onto the ramp. These exhaust gasses push against and are accelerated by the ramp on one side — as in a bell nozzle — but are free to expand to atmospheric pressure on the other side. This allows the aerospike's plume to naturally widen away from the ramp as the vehicle climbs to higher altitudes and atmospheric pressure decreases, providing a self-optimizing, altitude-compensating effect.

Data on cell-to-cell plume interaction, cell-to-cell feed system interaction and heating is gathered through pressure, acoustic, thermal and optical sensors placed on and around the test article. High-speed cameras also capture the tests on film from various angles. Data collected from the tests is reviewed with Rocketdyne, maker of the test article, and the X-33 and

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Marshall Center Employees to be Honored at STS-84 Launch

These 19 Marshall employees are being honored with a trip to the launch of STS-84 next month at the Kennedy Space Center for their dedication to space flight as part of NASA's Space Flight Awareness program.

Leslie Alexander
EP23

Gloria Carr
TA11

Richard Cloyd
ED53

Calvin Collins
FA25

Frederick Davey
BF01

Jeffrey Ehmen
CL01

Frank Fogle
EJ33

Lisa Hughes
CC01

Jeffrey Jackson
GP30

Paul Johnson
CR75

Joseph King
AB14

Larry Lott
EE54

Debbie Matthews
PA01S

William McPherson
EH23

Lisa Messer
SA51

Peggy Rickles
JA02

Willa Russell
EM21

Tim Sanders
EP52

Felminio Villella
EB13

X-33 Aerospike Testing

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VentureStar aerospike engines. A division of Boeing North American, Rocketdyne is located in Canoga Park, Calif.

NASA and Lockheed Martin Skunk Works are developing the X-33 in a partnership formed in June 1996. They plan to use two aerospike engines, each with two banks of 10 thrust cells, to power the vehicle, which is scheduled for flight testing in 1999.

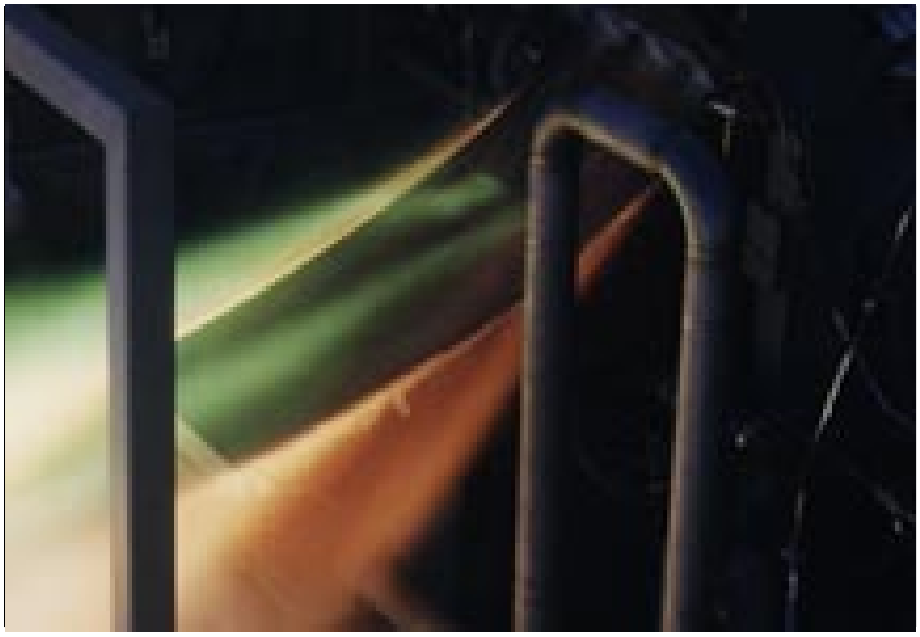
The X-33 is a technology demonstration model of a Reusable Launch Vehicle (RLV) called "VentureStar" which Lockheed Martin hopes to develop early in the next century.

The company plans to use seven aerospike engines to power the full-scale RLV into orbit. The RLV will transport and launch commercial payloads at much lower costs per pound than currently possible.

Throughout the next few months, Marshall also plans to conduct aerospike engine component tests on ignition and gas generator systems.

Testing of the 20-cell X-33 aerospike engine is currently scheduled to take place next year at NASA's Stennis Space Center in Mississippi.

Rocketdyne conducted numerous hot-fire tests of a full-scale aerospike engine similar in size to the X-33 model in the early 1970s. The engine design is considered complementary to the X-33's lifting body shape because the vehicle's broad aft end lends itself to lining up a row of aerospike engines to provide the vehicle's propulsion.



Marshall propulsion engineers conduct a hot-fire test of components designed for the X-33 linear aerospike engine. The test apparatus consists of three side-by-side thrust cells attached to a 4-foot-long copper alloy ramp, and represents a section of the linear aerospike engine planned for NASA's X-33 demonstrator vehicle. Two aerospike engines, each with two banks of 10 side-by-side thrusters, will provide propulsion for the sub-orbital X-33. ***Photo by Dennis Olive***

Marshall employee Larry Fine, CN72, chats with a student about his project during the 1997 Alabama Science and Engineering Fair at the University of Alabama in Huntsville April 18-19. Fine was one of several Marshall volunteers who were judges during the fair.

Microgravity Science Laboratory

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space station Mir next month. Astronaut Jerry Linenger will return home on STS-84 following a four-month stay on Mir, and Mike Foale will replace him as a station crew member. Managers will formally select the STS-84 launch date following the Flight Readiness Review today.

"While shortening STS-83 was disappointing, we now are in a position to do everything possible to complete the MSL mission with minimal impact to downstream flights," said Space Shuttle Program Manager Tommy Holloway. "Also, it provides us with a unique opportunity to demonstrate our ability to respond to challenges such as this one."

Reflying Columbia in July dictated that downstream flights for the remainder of the year change slightly. Following STS-94, Discovery will fly in early- to mid-August on the STS-85 mission to deploy and retrieve a science satellite to study Earth's atmosphere. The flight also will demonstrate the use and operational capability of a robot arm that will be deployed outside the Japanese Experiment Module of the International Space Station.

The seventh Shuttle-Mir docking mission on Atlantis is targeted for mid- to late-September. STS-86 will include the return of Foale from Mir and delivery of his replacement, astronaut Wendy Lawrence.

The eighth and final mission scheduled in 1997 will be the STS-87 flight of Columbia slated for mid- to late-November. The 16-day mission includes the conduct of science experiments comprising the fourth flight of the Marshall-managed U.S. Microgravity Payload and the deployment and retrieval of a science satellite.

Open House On Saturday Aims to Show Appreciation to Public

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research missions aboard the Shuttle, or at Marshall's Neutral Buoyancy Simulator — the 1.3-million-gallon tank where Lee prepared for his demanding role in servicing Hubble.

There's much, much more to experience at Marshall's Open House between 9 a.m. and 4 p.m. May 3: Witness a live test firing at the Marshall facility designed to test solid rocket boosters and motors for America's space program. See a live demonstration of wind blasts at five times the speed of sound — just like tests used to perfect NASA launch vehicles. View the world's flattest floor, where remote-controlled robots are tested for space missions. Peer into the Spacelab Mission Operations Control Center, where Space Shuttle science missions are managed. Get a peek at the future control center where science missions aboard the International Space Station will be managed. And see the actual Space Station being assembled.

You can take home some free advice on more Earthly subjects, too: If you're one of those persons whose VCR blinks "12:00" constantly, or would like advice on how to operate a camcorder, ask an expert at Marshall's TV studio. You can drop by a live television studio set for a demonstration of the complex audio and video equipment used to produce live Space Shuttle mission coverage. And children will be able to take home a free, 5-by-7-inch souvenir color print of themselves from "space" to show their friends.

At Marshall's Solar Observatory, where scientists map the magnetic field of the Sun, you can peer at live solar images — if skies are clear — taken with Marshall's telescopes.

Visitors will be given a free, 16-page souvenir brochure of the Marshall Center, with a cover that becomes a handsome wall poster. Giveaways also include balloons, a Space Shuttle poster and special commemorative coins.

Other souvenirs, as well as refreshments and food, will be available for purchase at locations throughout the Center.

'A Time for Courage'

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Center and a community," she said.

Swindell and Solomon have joined forces before. In 1993, Tina , with help from her husband, Bill, created a song titled "Thank God Dreams Survive." With the encouragement of co-workers and management, Swindell and Solomon created a video which premiered at a session of the International Space University in Huntsville.

Writing and performing music have become an essential part of life for Swindell, but her career is focused on the duties of administrative officer for the Payload Projects Office. Solomon, as a television producer, has contributed to a wide range of Center activities, including the Von Braun Forums. "A Time for Courage has been especially enjoyable," she said.

The Open House "has been planned by Marshall employees to show our appreciation to the public for many years of support," said May Wales, co-chairman of the event. "The day has been designed as a casual, comfortable, flexible one for visitors, who are encouraged to build their own tour by walking or driving from location to location," she said. Marshall Center representatives will be on hand to provide information and answer questions.

Visitors can enter Redstone Arsenal for the Marshall Open House through two gates on May 3: Gate 1, from Martin Road at the South Memorial Parkway interchange; and Gate 9, at the Rideout Road exit of Interstate 565.

Flyers and a vehicle placard — that must be displayed on all vehicles entering the Arsenal — will be available the day of the Open House at the Arsenal gates. To avoid the possibility of waiting at a gate, you can pick up a placard today at local libraries, area colleges and at the U.S. Space & Rocket Center.

Marshall Experiments

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Properties Monitor, is intended to collect data on how the space environment affects the Mir's outer surface. It was developed by AZ Technology of Huntsville under Marshall Payload Projects Office management and was taken to Mir on the STS-81 Shuttle flight in January.

"The Optical Properties Monitor team was very excited to see the successful deployment of the experiment early Tuesday morning," said experiment Project Manager Steve Davis of Marshall. "All indications are that it is operating properly and downlink video confirmed that the carousel of experiment samples rotated to begin the initial series of measurements. The experiment is off to a great start."

Initial measurements are expected to arrive for analysis next week. The experiment will continue to collect data and provide weekly downlinks for approximately eight months, during which data will be evaluated by the Space Environment and Effects program.

During the spacewalk, Linenger also retrieved the Partial Impact Experiment and the Mir Sample Experiment from the Kvant-2 science module. Both experiments were deployed by Russian cosmonauts during a spacewalk last year and are designed to monitor the outside environment of the Mir.

Linenger, more than 100 days into his research mission aboard Mir, is nearing the end of his stay. He is due to be replaced by astronaut Mike Foale during the next Shuttle mission, an Atlantis flight targeted for mid-May.

Obituary

Duffey, Paul, 77, Ivalee, died March 31. He retired from Marshall in 1971 where he worked as an aerospace engineering technician.

Employee Ads

Miscellaneous

★ Boat, 75HP motor, trailer $900. Cable coaxial, RG62-A/U terminated with BNC connectors, various lengths. 883-8947
★ Upright freezer, 13 cubic feet $150. 353-4692
★ Ladies business suits and dresses, size 10, $20 each. 205-498-2116
★ Murray 18hp., 42" cut mower, with plow, cultivator, sleeve hitch $800. 776-3040
★ Dining room table, walnut, six chairs with two leaves 1930/40's vintage. 464-3182
★ Kenmore washer and dryer, white, 10 years old $125. 881-1559
★ Pfaltzgraff Trousseau pattern dishes, 12 place settings with glasses, etc. $400. 776-3040
★ Antique oak dresser, rocker; wicker rocker; bird cage; wicker baby scales. 536-1553
★ Fish tank: 55 gallon, stand, all accessories $250. 895-9986
★ Campershell, ladder, rack for a full size truck, SWB $30; exerciser $60; custom diamond cluster ring $600. 882-9785
★ Washer, Frigidaire, white $85. 650-5128
★ Membership at Little Mountain Resort on Lake Guntersville. Cabins, camping, fishing, boating, swimming etc. 881-0645
★ Murray garden tractor, 18hp., 42" cut, bad motor, 3 yrs. old $200. 776-3040
★ Canoe, 15 ft. Coleman Ram-X with seat backs $300. 350-9920
★ 30 gallon saltwater fish tank with coral, accessories, stand and fish $190. 828-6117
★ Rattan sofa & love seat, coffee table, end table, two lamps, white wicker day bed, dresser with mirror, chest of drawers & night stand. Best offer. 830-0961 or 880-7898
★ AKC female Dalmatian, 2 years old $75. 306-0194
★ Thistle sailboat, 17ft., 8 sails, trailer $3,200. 539-6114
★ 1992 to present Honda Prelude car cover, bra & sunroof visor. Make offer. 539-2951

Vehicles

★ 1985 Mazda 626, less than 100K miles $2,300. 837-2783
★ 1987 Astro Van, customized package, high top, new tires, dark blue. 351-6955
★ 1993 Chevy Beretta GT, one owner $6,500. 534-6508 evening.
★ 1983 Pontiac J2000 124K miles PS/PB, 5-speed $1,650; 1970 Ford pickup, 302 V8, 124K miles $1,550. 852-5394
★ 1991 Mazda Miata, red with black top, A/C, security system. 205-498-0629

Lost

★ Black softball glove at Marshall's softball field. 922-0958
★ Black & tan Mizuno softball glove at Marshall's softball field. 544-3648
★ Dark brown leather bomber jacket at Marshall's softball field. 880-4091

Wanted

★ Honda, Snapper, John Deere push mower. 837-0085
★ Men's Trek mountain bike, used. 883-6821

Free

★ GE, Refrigerator, large side by side, compressor works, need recirculating fan, autumn gold. 650-5128
★ Large dog house. You haul. 539-6114

Center Announcements

☛ ***EWS*—**The monthly test of the Emergency Warning System will be held May 1 at 3 p.m. this is an audio test only. DO NOT evacuate to protective areas. If severe weather is occurring at this time, the test will be rescheduled to a later date. Safety coordinator/monitors should send reports of malfunctioning speakers to AB11/Emergency Preparedness Officer, 544-5187, as soon as possible.

☛ ***MMA*—**The Marshall Management Association is conducting a midyear membership drive until May 9. Membership in this organization for the rest of the year can be obtained with a $15 fee. Meetings are held every quarter and the program generally consists of a social hour, dinner and a presentation given by a guest speaker. Interested individuals may forward their payment to John Cather/GP50.

☛ ***MARS* —**The MARS Golf Tournament is scheduled for May 3 at Plantation Point. The format for the tournament will be two-man best ball. Deadline for entries is 12 noon on April 25. Entry fee is $4 and green fees will be paid at the course. Open to all MSFC employees or retirees. Entry contacts are L. Foster (4-1589), J. Butler (4-3808), J. Loose (4-2422) and R. Harwell (4-2684). For more information call S. Tillery at 4-8651.

☛ ***Mississippi State*—**The Mississippi State University Huntsville/Decatur Alumni Chapter will host its annual spring meeting on May 8 at the Marriott Hotel. The social hour begins at 6:30 p.m. and dinner at 7 p.m. and the speaker will be Jack Cristil. Reservations must be made by 2 p.m. May 5. The cost is $17 prepaid & $19 at the door. For reservations contact K. Dugard (772-7081), J. Ward (883-9462), M. Gordon (880-3182), R. Jones (971-1929) or H. Smith (355-7690)

☛ ***Toastmaster*—**Redstone Toastmasters International will meet every Tuesday at 6 p.m. in the Morrison's Cafeteria in Madison Square Mall. For more information call 461-0476

☛ ***MARS Ballroom Dance*—**The MARS Ballroom Dance Club will offer intermediate tango and foxtrot lessons ($8 per person) from 7 to 8 p.m. and beginners' bolero and samba lessons ($8 per person) from 8 to 9 p.m. on May 5, 12, 19, and 26. The classes will be held in the Parish Hall of Saint Stephen's Episcopal Church at 8020 Whitesburg Drive. These lessons are available to MARS Ballroom Dance Club Members and their partners/guests. For more information about the lessons, call Pat Sage at 4-5427; for a club membership application, call Linda Kinney at 4-0563.

Job Opportunities

CPP 97-19-RE, Supervisory AST, Aerospace Vehicle Design & Mission Analysis, GS-861-15, Program Dev., Preliminary Design Ofc., Mission Analysis & Integration Div. Closes May 1, 1997

CPP 97-20-RE, Supv. AST, Electrical Systems GS-850-15, Progam Dev., Preliminary Design Ofc., Avionics & Propulsion Sys. Div. Closes May 1, 1997

CPP 97-23-CV, AST, Flight Structures, GS-861-14, S&E, Structures & Dynamics Lab, Structural Design Div., Structural Dev., Branch. Closes May 1, 1997

CPP 97-26-DC, AST, Telemetry Sys., GS-855-14, S&E, Astrionics Lab, Computers & Data Sys. Div., Flight Data Sys. Branch. Closes May 1, 1997

CPP 97-27-DC, AST, Navigation, Guidance & Control Sys., GS-861-14, S&E, Astrionics Lab, Instrumentation & Control Div., Control Electronics Branch. Closes May 1, 1997

CPP 97-30-SH, Supv. AST, Mission Support Requirements and Development, GS-801-15, S&E, Mission Operations Lab, Training & Crew Sys. Div. Closes May 1, 1997

Reassignment Bulletin 97-11-CP, **Computer Assistant,** GS-335-7, Spaces Sciences Laboratory, Office of the Director. Closes May 1, 1997

CPP 97-28-DC, AST, Tracking and Telemetry Sys., GS-855-14, S&E Astrionics Lab, Optics and Radio Frequency Div., Radio Frequency Branch. Closes May 5, 1997

CPP 97-29-DC, AST, Electrical Sys., GS-850-14, S&E, Astronic Lab, Electrical Div., EEE Parts & Packaging Branch. Closes May 5, 1997

MARSHALL STAR

Marshall Space Flight Center, Alabama 35812

The Marshall Star is Published every Wednesday by the Public Affairs Office at the George C. Marshall Space Flight Center, National Aeronautics and Space Administration. Contributions should be submitted no later than Friday noon to the Marshall Public Affairs Office (CA10), Building 4200. Submissions should be written legibly and include the originator's name. The Marshall Star does not publish commercial advertising of any kind.

Writer-Editor – Angela D. Storey
Editorial Assistant – Betty Humphery
Director, Media Services – David B. Drachlis
Director of Public Affairs – John B. Taylor
U.S. Government Printing Office 1997-532-111- 60009

BULK RATE
Postage & Fees PAID
NASA
Permit No. G-27